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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,767	08/31/2001	Ramesh Hariharan	RD-28131	2463

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GENERAL ELECTRIC COMPANY  
GLOBAL RESEARCH  
PATENT DOCKET RM. BLDG. K1-4A59  
SCHENECTADY, NY 12301-0008

EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 05/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/943,767

Applicant(s)

HARIHARAN ET AL.

Examiner

Martin J Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-115 is/are pending in the application.
- 4a) Of the above claim(s) 38-115 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. The applicant's response has been read and given careful consideration. Responses to the arguments of the applicant are provided after the first rejection to which they are directed.
2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-37, drawn to an optical recording medium having a polymeric substrate, classified in class 430, subclass 270.11.
  - II. Claims 38-78, drawn to a method of determining/calculating water strain of a multilayered article, classified in class 356, subclass 32.
  - III. Claims 79-115, drawn to a polymer useful in an optical storage medium, classified in class 528, subclass 196+.

The inventions are distinct, each from the other because:

3. Inventions group I and group II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the water strain can be merely measured and the deflection's acceptability be determined using another basis, such as the ISO standard used to determine the acceptability of the medium.
4. Inventions group III and group I are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as a polymeric lens material or for other polymeric

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coatings and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

**The examiner notes that sections [0040-0055] disclose a virtual laundry list of polymers. section [0056] specifically states that "It will be apparent to those skilled in the art from the foregoing that the polyphenylene ethers contemplates for use in the present invention include all those presently known, irrespective of variations in structural units or ancillary chemical features". This constitutes an admission that any known polyphenylene polymers meet the claim limitations. The polycarbonates of US patent 4,217,438 are disclosed as meeting the claims [0044].**

5. Inventions group III and group II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the water strain can be merely measured and the deflection's acceptability be determined using another basis, such as the ISO standard used to determine the acceptability of the medium.

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6. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter and as shown by their different classification, restriction for examination purposes as indicated is proper.

7. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art, restriction for examination purposes as indicated is proper.

8. During a telephone conversation with Bernadette M. Bennett (44,522) on June 18, 2003 a provisional election was made with traverse to prosecute the invention of group I, claims 1-37. Affirmation of this election must be made by applicant in replying to this Office action. Claims 38-115 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

9. The applicants argues that there is no burden of search. A factual basis supporting a burden of search is of record and the restriction stands.

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for multilayer media with water absorption from one side only meeting the limitations of equation (I), does not reasonably provide enablement for embodiments where the water absorption occurs from both sides. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims

See [0031] and [0033].

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The equations used by the applicant only pertain to the case where a difference in the relative humidity exists (this causes the tilt) between the sides. Of water as humidity is present on both sides there is no strain as the force on each side is the same. Therefore the assertion that the equations applies to the case where water is present on both sides (as humidity) is flawed.

12. Claims 19-37 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for multilayer media with water absorption from both sides meeting the limitations of equation (II) and where the material for the thin film layer is a polymer having the same water absorption properties as the polymer of the substrate, does not reasonably provide enablement for embodiments where the water absorption occurs from only one side or where the thin film layer is a non-polymeric material or properties other than water absorption are relevant to formula (II). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims

See [0031], [0033] and [0035]. Thermal expansion and thermal conductivity are of interest [0034], but lack relevance to equation (II).

While the applicant asserts that the structure may be exposed to humidity on both (all) sides, the polymer substrate and the film are not necessarily. The equations merely set a upper limit for the strain and place it below that needed to achieve maximum tilt..

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being fully anticipated by "A Diffusion Barrier Film to Stabilize the Dimensional Properties of Single-sided Plastic Optical Disks", Research Disclosures 418105 (02/1999) pp. 277-278.

The coating of a polycarbonate substrate with an aluminum film on one side and a fluorocarbon barrier layer on the opposite side of the substrate. The shape of curves in the upper right hand side are similar to that of figure 2. The values at 120 hours are almost the same as the initial values. It is not clear if the 0.6 mm substrate of DVD standard or the 1.2 mm thick substrates of the CD standard were used, but clearly one of these would have been used.

In reviewing the specification and particularly sections [0031],[0033] and the examples in sections [0058-0060], it seems that the particular polymers used is not critical, but rather the structure is. Particularly, the disclosure in table 1 which seems to indicate that the polymer is non-critical.

The applicant asserts that the other layers (the fluorocarbon film) places the medium of the prior art outside the scope of coverage sought. The examiner disagrees, noting that the medium of the prior art is an optical recording medium and functions as such. The examiner notes that the specification at [0041, prepub] specifically discloses dielectric layers, protective layers, adhesive layers, lubrication layers and reflection layers. The examiner holds that the

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barrier layer is a protective layer within the scope of coverage sought and therefore the medium of the prior art is embraced by the claims.

16. Claims 19-31 and 34-37 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Slaten '179.

The video disk members 53 and 53' or 55 and 55' offset or neutralize the curling or warping of each other due to moisture absorption (8/39-48 and figure 7). Useful substrate materials include PMMA, PVC, ABS polymers and polycarbonates (11/66-12/30) See also col. 2/lines 30-50. The substrate is disclosed as being more than 50% of the thickness of the medium. (8/32-38).

The examiner notes that the claims do not preclude face bonding two optical recording media through their protective layers because open "comprising" type language is used.

The applicant asks which is the data layer. The data layer is the reflective layer which carries embossed information. The examiner notes that the data layer need not be a recordable layer and the use of metals is expressly disclosed in the applicant's data storage layer [0038 in prepub]. The applicant mistakenly reads claims 19 as requiring the data layer to have the same properties as the substrate. A more careful reading shows this to be required for the "at least one thin film layer on the data layer". **While the applicant may be correct in asserting that the cited example differs from the invention of the applicant, the examiner is of the opinion that it is embraced by the claimed invention.**

17. Claims 19-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slaten '179.



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It would have been obvious to modify the invention of Slaten '179 to use any of the polymeric materials disclosed as useful to form substrates with a reasonable expectation of achieving comparable results based upon the disclosure at 8/39-48 and 8/32-38.

The rejection stands for the reasons above without further comment as no further arguments were directed at this rejection.

18. Claims 1-6,8 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evan et al. '211.

See the data in figure 1 and example 2. The disclosure of the coating of a data layer on the disk media is disclosed (1/48-63).

It would have been obvious to one skilled in the art to place a recording layer on the disk formed in example 2 with a reasonable expectation of achieving a useful optical recording medium which does not deform in humid conditions and being able to record data upon it.

19. Claims 19-37 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Nakaki '110.

Nakaki '110 describes a polycarbonate substrate with a thickness of 1.2 mm, coated with an optomagnetic recording layer sandwiched by two protective layers (SiNx) and a hygroscopic swelling layer (7) of the same polycarbonate material as the substrate and having a thickness of 0.2 mm. The disclosure that the hygroscopic swelling layer has the same water absorptivity and swelling rate as the substrate to prevent warping is disclosed. (2/5-15).

The applicant suggests that an essential element of the invention is missing, but does not discuss what this is. The examiner is of the position that the scope of coverage sought extends to optical recording media including means to reduce the stress on the medium, and in particular the

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stress on the substrate. If a counter force is applied as discussed in the reference and the tilt is minimized, then the water strain on the polymer layer as part of the medium will be less than that which would be achieved at maximum tilt. The rejection stands.

20. Claims 19-37 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Anzai et al. JP 2001-067726 (translation attached).

Anzai et al. JP 2001-067726 describes the formation of an optical recording medium with a polycarbonate substrate and a second substrate laminated as the protective layer [0014-0015]

The applicant's equations limit the medium to a construction (substrate material and protective layer material) in which the (water) strain caused by humidity in the medium is less than that producing the maximum tilt. The use of a protective layer of the same material and thickness as the substrate will inherently produce the same force as that applied to the substrate, but on the opposite side. Therefore the forces will cancel. The rejection stands.

21. Claim 1-18 are rejected under 35 U.S.C. 102(b) as being fully anticipated by JP 04-321950.

JP 04-321950 describes an optical recording medium where the substrate is coated on one side with the recording layer and protection layers and only a protection layer on the other side. This prevents water intrusion from either side and the associated warping (see translation of abstract)

The language describing "prevention of damage and moisture adsorption on the substrate" is of bearing to the issues at hand. Protective layers preventing moisture intrusion will reduce the water strain on the substrate to zero.

22. Claims 19-37 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Itoigawa et al. '385.

Itoigawa et al. '385 discloses bonding two optical recording media together in a face to face orientation which reduces tilt as shown in figure 2.

The applicant asserts that their medium is asymmetrical, but this does not appear in the claims and therefore is an unrecited limitation. The argument is not commensurate with the scope of coverage sought.

23. Claims 19-37 are rejected under 35 U.S.C. 102(a) as being fully anticipated by JP 09-035330 (translation attached).

JP 09-035330 teaches an optical recording medium with a substrate coated with a porous Al layer and an acrylic protective layer which has the same water permeability as the substrate [0029 et seq.]

With most of the references, the data layer or a layer associated with it forms a barrier. The porous Al layer allows water to come into contact with both sides of the substrate. The applicant also has not limited the scope of same physical properties in the scope of the claims to recite the specific properties or how similar they must be to be substantially the same.

24. Claim 1-18 are rejected under 35 U.S.C. 102(b) as being fully anticipated by JP 04-108002.

JP 04-108002 describes an optical recording medium where the substrate is coated on one side with the recording layer and protection layers and only a protection layer on the other side. This prevents water intrusion from either side and the associated warping [fig 3 and 0028-0030]

The examiner notes the use of protective layers in the specification [0041].

**25 THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

**26** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

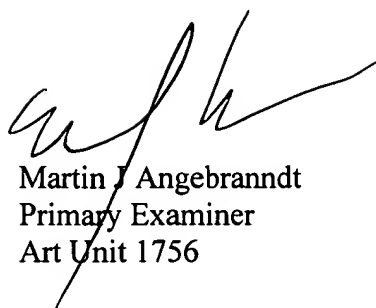
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Martin J Angebranndt  
Primary Examiner  
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